Abstract

Process for preparing chlorine from hydrochloric acid, which comprises the steps:

a)   providing a hydrochloric acid feed stream I;

b)   providing a hydrochloric acid recycle stream II;

c)   separating off a hydrogen chloride stream IV from the hydrochloric acid feed stream I and the hydrochloric acid recycle stream II in a distillation step;

d)   feeding the hydrogen chloride stream IV, an oxygen-containing steam V and, if desired, an oxygen-containing recycle stream Va into an oxidation zone and oxidizing hydrogen chloride to chlorine in the presence of a catalyst to give a product gas stream VI comprising chlorine, unreacted oxygen, unreacted hydrogen chloride and water vapor;

e)   separating off hydrogen chloride and water from the product gas stream VI in an absorption step to give a gas stream VII and the hydrochloric acid recycle stream II;

f)   if desired, drying the gas stream VII;

g)   separating off an oxygen-containing stream from the gas stream VII and, if desired, recirculating at least part of this as oxygen-containing recycle stream Va to the oxidation zone, leaving a chlorine-containing product stream VIII;

h)   if desired, further purifying the chlorine-containing product stream VIII.